

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the above amendments and the following remarks, which place the application into condition for allowance.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-4, 6, 7, 9-20, 22, 24 and 25 are pending in this application and are rejected in the final Office Action mailed on May 3, 2006.

Initially, Applicants' attorneys failed to see a basis of rejection for claims 17 and 25 in the Office Action. On August 2, 2006, Applicants' attorneys called Examiner Young to discuss whether the claims were rejected. Examiner Young indicated that the Office Action contained a typographical error and that all pending claims in the application are rejected.

Please note that the instant application was recently transferred to Frommer Lawrence & Haug LLP and that the Attorney Docket No. has been changed from FM-112J to 930114-2011. Additionally, a revocation of the current power of attorney and a new power of attorney in Ronald R. Santucci and Frommer Lawrence & Haug LLP will be filed in the instant application.

II. THE REJECTIONS UNDER 35 U.S.C. § 103

In paragraph 3 of the Office Action, claims 1-4, 6, 7, 9-16, 18-20 and 24 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the combined disclosures of U.S. Patent No. 4,861,653 to Scollard ("Scollard") and U.S. Patent No. 4,808,461 to Boyce et al. ("Boyce"). The rejections are traversed for at least the following reasons.

As recited in the independent claims, the instant invention is directed to methods of joining composite parts. For example, claim 1's method of joining composite parts comprises the steps of:

disposing a plurality of extrinsic reinforcing elements each extending through the thickness of two composite adherends to be joined, at least a number of said reinforcing elements extending from the joint surface area of each said adherend;

assembling said adherends so that the joint surface of one said adherend faces the joint surface of the other said adherend defining a joint region therebetween, said extending reinforcing elements interstitially disposed in said joint region; and

disposing an adherent within said joint region about said interstitially disposed reinforcing elements and said joint surfaces.

In paragraph 6 of the Office Action, the Examiner states that the combination of art differs in the order of the reinforcing steps and that it has been held that the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. The Examiner further states that in the absence of evidence to the contrary that the product of the prior art does not possess the same material structural and functional characteristics of the claimed product, the burden is on the Applicant to prove that the claimed products are functionally different than those taught by the prior art and to establish patentable differences.

In the instant invention, the order of performing the processing steps is very important. As disclosed in the instant specification and as claimed, the reinforcing elements are disposed within at least one of the adherends and extend or protrude into the joint region between the two adherends prior to the addition of an adherent into the joint region. As recited above in claim 1, first the plurality of extrinsic reinforcing elements are disposed through the thickness

of the adherends, where at least a number of reinforcing elements extend from the joint surface area. Next, the adherends are assembled such that a joint region is formed between the adherends where the reinforcing elements extend and are interstitially disposed in the joint region. Lastly, an adherent is disposed within the joint region about said interstitially disposed reinforcing elements and joint surfaces. In addition, as required by the last step, the adherent is disposed within the joint region "about said interstitially disposed reinforcing elements." Therefore, the reinforcing elements are in place prior to the addition of the adherent.

The ordering of the steps in the instant invention is advantageous and an improvement over the prior art and results in a different structure than that disclosed in the prior art because the order of the steps allows for more surface area in the joint region for the adherent to bond with in order to join the surfaces of each adherend. *See Instant Application*, page 10, lines 16-18. Specifically, the reinforcing elements or fibers that extend interstitially between the two adherends form a mechanical interlock that improves joint strength over prior methods where the adherent was only secured to the joint surfaces of each part. *Id.* at page 10, lines 18-21. In addition, the adherent may be urged partially up the length of the individual reinforcing elements to form even a more cohesive bond. *Id.* at page 10, lines 21-23. Consequently, the inclusion of the reinforcing elements in the joint region prior to the addition of an adherent, results in an improved joint between two composite structures because of a stronger bond between the structures.

In contrast, Scollard discloses that structural elements are brought together such that two substantially parallel abutment surfaces are formed with a space therebetween. Injected into the space between the abutment surfaces is a viscous curable void filler, which the Examiner equates to the adherent of the instant invention. *See Scollard*, col. 4, lines 1-16. The

void filler, however, is not used to join the structures together. Instead, the joint filler is used to fill the gaps formed when the two irregular abutment surfaces are brought together. *Id.* at col. 2, lines 1-54. After the joint filler is injected, the void filler is then cured. After the void filler is cured, fasteners such as rivets, are inserted in order to join the two structures together. *Id.* at col. 4, lines 16-20. Because the fasteners (which the Examiner equates to reinforcing structures) are applied after the void filler is cured, the surface area that the void filler interacts with is not increased as is the case with the instant invention. Consequently, Scollard does not have the increased joint strength that is obtained with the instant invention because applying the reinforcing structures (the fasteners) after the void filler is cured does not result in the joint filler bonding to an increased surface area and the joint filler cannot be urged up the length of the reinforcing elements to form an even more cohesive bond. Accordingly, the specific order of steps required by the instant claims is necessary to produce structures made in accordance with the instant invention and, as a result, the structures produced by the claimed methods are functionally and structurally different than those taught in the prior.

In paragraph 4 of the Office Action, the Examiner states that Scollard differs from some of the claims because Scollard fails to describe the component parts as preregs or the reinforcing elements as fibers. In an effort to cure the deficiencies of Scollard, the Examiner applies Boyce in combination. As acknowledged by the Examiner in paragraph 5 of the Office Action, Boyce, however, fails to disclose the use of an adherent in the space between the parts that are to be joined. Instead, Boyce discloses that one or more reinforcement structures are applied to desired locations on an uncured composite. The composite with applied reinforcement structures is then subjected to elevated temperatures and pressures. As heat and pressure are increased to the composite and reinforcement structures, the reinforcement

elements are driven into the uncured composite. *See Boyce*, col. 2, lines 12-30. Because the reinforcement members are driven into the uncured composite, Applicants' attorneys respectfully assert that there is no need for an adherent and therefore, a skilled artisan would not be motivated to include an adherent as suggested by the Examiner in the Office Action. The only motivation for using an adherent is found only in the instant disclosure. Consequently, Applicants' attorneys respectfully submit that the Examiner is using impermissible hindsight based on the Applicants' disclosure to determine that the Applicants' invention is obvious in view of Scollard and Boyce. *See* M.P.E.P. § 2142 ("The teaching or suggestion to make the claimed combination [or modification] . . . must be found in the prior art, and not based on applicant's disclosure." (*citing In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991))). Therefore, the Section 103 rejections of claims 1-4, 6, 7, 9-16, 18-20, 22 and 24 must fail as a matter of law and as a result, it is respectfully requested that rejection of these claims under Section 103 be withdrawn.

For at least the foregoing reasons, because Scollard and Boyce, either alone or in combination, fail to teach or suggest each and every limitation of independent claims 1, 6, 9, 10, 12, 13, 14, 15, 16, 18, 19, 20, 22, 24 and 25, it is respectfully submitted these claims patentably distinguish over the relied upon portions of the cited references and are therefore allowable. Further, claims 2-4 that depend from claim 1, claim 7 that depends from claim 6, claim 11 that depends from claim 10, and claim 17 that depends from claim 16, are allowable therewith.

Statements appearing above with respect to the disclosures in the cited references represent the present opinions of the Applicants' undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner

specifically indicate those portions of the respective reference providing the basis for a contrary view.

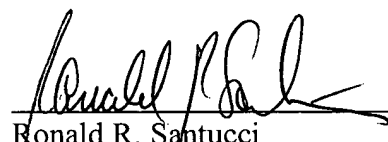
CONCLUSION

In view of the foregoing, Applicants believe that all of the claims in this application are patentable over the prior art, and an early and favorable consideration thereof is solicited.

Please charge any fees incurred by reason of this response and not paid herewith to
Deposit Account No. 50-0320.

Respectfully submitted,
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